U.S. Department of Housing and Urban Development
Office of Policy Development and Research

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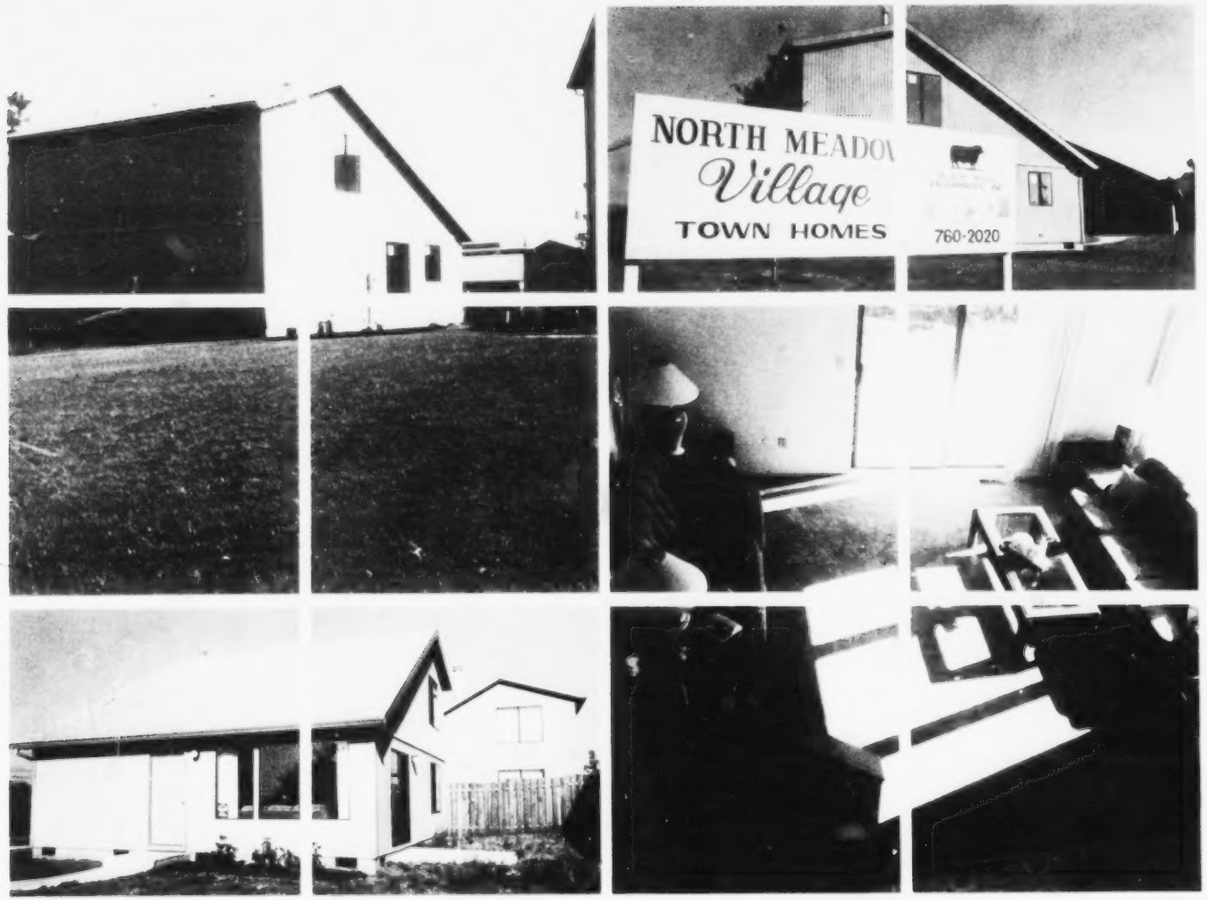
The Affordable Housing Demonstration

Portland, Oregon

A Case Study



The Joint Venture for Affordable Housing

THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410

January 1986

Four years have gone by since I announced the formation of the Joint Venture for Affordable Housing as a public-private partnership to make homeownership available to more people by combating the problem of high housing costs due to outdated and unnecessary building and land use regulations. Much has been accomplished toward this goal.

We in the Federal government can point with pride to several achievements. Mortgage interest rates, which were approaching 20 percent when this Administration took office, have been brought down by the President's economic recovery program by almost half; they are generally ranging from 10 1/2 to 11 1/2 percent in most parts of the country. At the same time, the Department of Housing and Urban Development's Federal Housing Administration has made it much easier for builders to obtain project approvals both by streamlining mortgage insurance processing and by simplifying HUD's own regulatory requirements; rather than impose a second set of rules in the Minimum Property Standards, HUD's Field Offices now accept projects meeting local building codes in most instances.

Equally significant progress has been made by many local communities. Local government officials and builders have cooperated to create new "affordable housing demonstrations" all across the country. With savings as much as $10,000 per home in some projects, many more families have been able to buy their own homes. As these projects are completed, put on the market, and often sold out, their history and the savings which have been achieved are described in case study reports.

This is one of several new reports describing projects completed during the past year. Each project is different, and each case study has its own story to tell. I urge you to read this case study and the other new reports, as well as the 12 which preceded them, and to use the ideas described therein as they apply to your situation in your community. These ideas will help bring the cost of new housing in your community down to levels where more people can afford housing, and that is what we all want to happen.

Very sincerely yours,

Samuel R. Pierce, Jr.

The Affordable Housing Demonstration
A Case Study

Portland, Oregon

Prepared for:
U.S. Department of
Housing and Urban Development,
Division of Building Technology

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This report was produced by the NAHB Research Foundation, Inc., for the United States Department of Housing and Urban Development. The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official view or policies of the United States Government.

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Summary

Portland, county seat of Multnomah County, is the largest city in Oregon, with a 1980 population of 368,139 and 100 square miles of land. In 1980 the median household income in the city was $23,098. The average 1983 home price in the county was $70,607; new homes generally ranged from $69,000 to $81,500.

HUD designated Portland and builder/developer Mike Robinson participants in the Affordable Housing Demonstration in 1983. Black Bull Enterprises, Robinson's company, began construction on the 6-acre demonstration site, North Meadow Village, in 1984.

Easily accessible to downtown Portland, North Meadow Village will have a total of 58 units upon completion in 1986. Prices of the single-family detached units range from $50,000 to $55,000. The density of the development is 9.7 units per acre, and most homes are arranged in groupings of four, called pinwheel clusters.

The saltbox style units feature vaulted ceilings over the living room, kitchen, and dining room that slope upward toward a two-story bedroom/bathroom area. Each home has 1,269 square feet of living space that includes a utility room and two full bathrooms. Home buyers can select from numerous options.

Portland Mayor Frank Ivancie and city staff worked with HUD, the NAHB Research Foundation, and the builder to relax regulations and foster cost-saving techniques that amounted to a savings of $15,647.

The Joint Venture for Affordable Housing

Housing costs have risen dramatically in recent years, so that many people have been unable to buy a home. Part of this cost increase was due to the high rate of interest on home mortgages, which reached almost 20 percent in some areas of the country before dropping under 13 percent in 1985.

A large part of the increase, however, was due to other factors -- inflation in the cost of materials and labor, a reduction in the amount of land available for housing, which has drastically increased lot prices, and changes in market patterns leading to larger homes on larger lots. Recent studies by the President's Commissioners on Housing and by a special U.S. Department of Housing and Urban Development (HUD) Task Force on Housing Costs confirm the findings of earlier studies which show that ways exist to cut the cost of housing, if they are used. Too often, these studies show, out-of-date regulations and building practices prevent these ideas from being applied. In fact, the studies pointed out that many builders and local officials do not even know about many of the ways that exist to reduce housing costs.

The Joint Venture for Affordable Housing was initiated by HUD Secretary Samuel R. Pierce, Jr., to correct this situation. Since affordable housing is a problem which involves all levels of government as well as the rest of the housing industry, finding an answer requires the participation of all of these elements. The Joint Venture, therefore, is a real partnership of the following organizations, all of whom have an interest in making housing more affordable:

- American Planning Association
- Council of State Community Affairs Agencies
- International City Management Association
- National Association of Counties
- National Conference of State Legislatures
- National Governors' Association
- Urban Land Institute
- National Association of Home Builders and the NAHB Research Foundation
- U. S. Department of Housing and Urban Development

Through conferences, workshops, demonstrations, publications, and similar activities, each of these organizations is helping to identify ways to cut construction costs through more effective and efficient planning, site development, and building procedures, and to provide this information to its members.

The Affordable Housing Demonstrations

Home builders learn from other builders; successful ideas are copied and used in new ways by other builders in many different areas of the country. The affordable housing demonstrations have been developed to illustrate ideas for reducing housing costs in real projects and to provide information on the cost savings that resulted.

The central theme of the demonstration program is that a builder and those local officials responsible for regulatory approval can, together, identify ways to reduce the cost of housing and to modify or interpret local building codes and site development regulations so that these

methods can be used. In the demonstration program, no Federal funds are provided either to the builder or to the community to support the demonstration projects.

HUD and the NAHB Research Foundation do provide technical assistance through various publications documenting previous research studies and through suggestions to the project designers, but it is the builder's responsibility to develop a list of possible cost-cutting ideas and it is the responsibility of local officials to accept those which are reasonable for that community.

Participating builders and communities were selected for the demonstration program in several ways. Before the Joint Venture was announced in January 1982, HUD approached a number of communities which had already demonstrated, in other activities, a willingness to modify regulations and to take other steps to encourage local development. As these communities agreed to participate in the program, the National Association of Home Builders worked through its local associations to identify builders in the communities with reputations for quality and records of innovation. Following announcement of the first twelve communities and builders selected to participate in the demonstration program, many other communities and builders expressed interest in joining the program. In each case, HUD required a formal commitment by the highest elected official that the local government would support the program.

Once a project was accepted, HUD and the NAHB Research Foundation assisted the builder to identify cost-cutting ideas and to develop a workable, attractive site plan. The cost-cutting measures used in the various demonstrations vary widely. In some projects, unit densities were increased to reduce the impact of land cost on the final price, while good site planning and design made this increased density acceptable to the community. In other projects, street widths, street design standards, and utility system requirements were changed to reduce costs. Housing materials and construction methods were changed in many projects. In addition, many projects benefited from improvements in local administrative procedures which reduced the time and effort needed to obtain building and land use approvals.

The Case Study Approach

Each project undertaken as an Affordable Housing Demonstration as part of the Joint Venture for Affordable Housing is being described in a case study report. The case studies are intended to be learning tools to help home builders, local officials, and others concerned about affordable housing recognize and seize opportunities to reduce housing costs through regulatory reform and the use of innovative planning and construction techniques.

Information on the changes and their impact on costs has been collected by the NAHB Research Foundation. Each case study describes the community, outlines the builder's experience, and discusses the specific project characteristics and history. Where possible, the cost savings resulting from the use of the various procedural, planning, development, and construction changes are calculated and reported in the case studies.

The following material provides this information on the Affordable Housing Demonstration project in Portland, Oregon.

Chapter 1

Project Description

The Community - Portland, Oregon

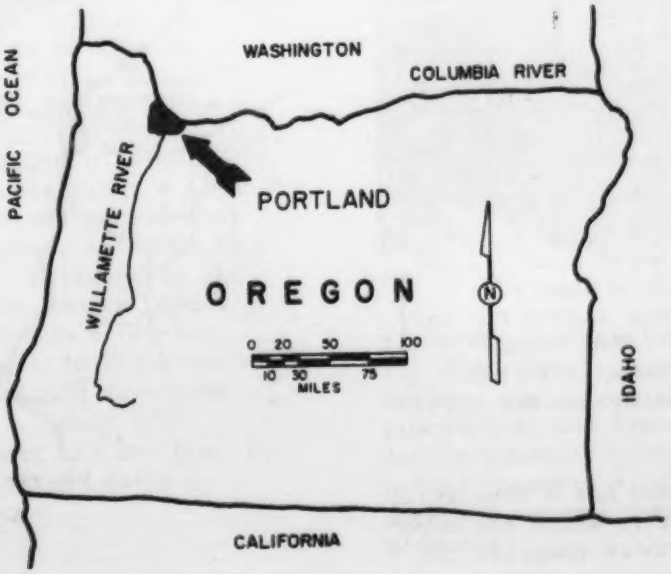
Portland is located on the northern border of Oregon, 100 miles east of the Pacific Ocean, at the confluence of the Columbia and Willamette Rivers. Vancouver, Washington, a suburb of Portland, lies to the north across the Columbia. To the south the Willamette Valley, a rich farming region, stretches past Salem, the state capital, to Eugene, the second largest city in Oregon. The valley is bordered by the heavily forested Coast Range to the west and the snow-capped Cascade Range to the east.

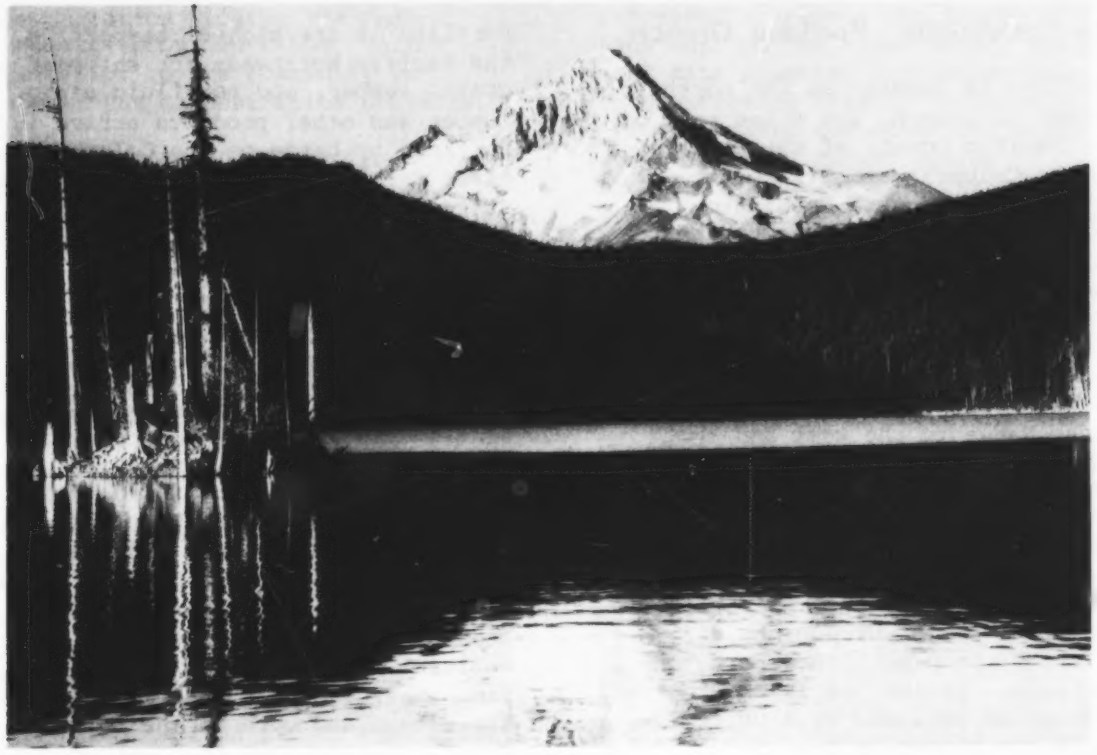
Portland is the largest city in Oregon, with a 1980 population of 368,139 and 100 square miles of land. Forty percent of Oregonians, 1,242,594 people, live in greater Portland. During the 1970s, the city population declined by 3 percent, while the number of households increased by 10 percent . At the same time, the population of the metropolitan area increased by 23 percent and households by 39 percent. In 1980 the median household income in the city was $23,098.

Portland is the biggest seaport in the Pacific Northwest for shipment of grain, lumber, and non-fluid cargo. Lumber and other products arrive in Portland by barge on the Columbia River from western Oregon, Washington State, and Idaho. River traffic moves through locks built to bypass a series of hydroelectric dams. In addition, Portland lies on main interstate railways and highways.

More than 2,000 plants in the Portland vicinity process metal and manufacture lumber, wood products, paper, electrical equipment, and machinery. Canning of salmon and tuna and processing of beef and wheat from western Oregon and fruit and vegetables from the Willamette Valley are important industries. Portland leads the Pacific Northwest in wholesaling. It is also the financial, medical, and office center for Oregon and much of the Columbia River interior, and the seat of Multnomah County.

The climate of Portland is ocean-tempered and humid. The mean January temperature is 40°F, with average highs of 44°F. The daily low



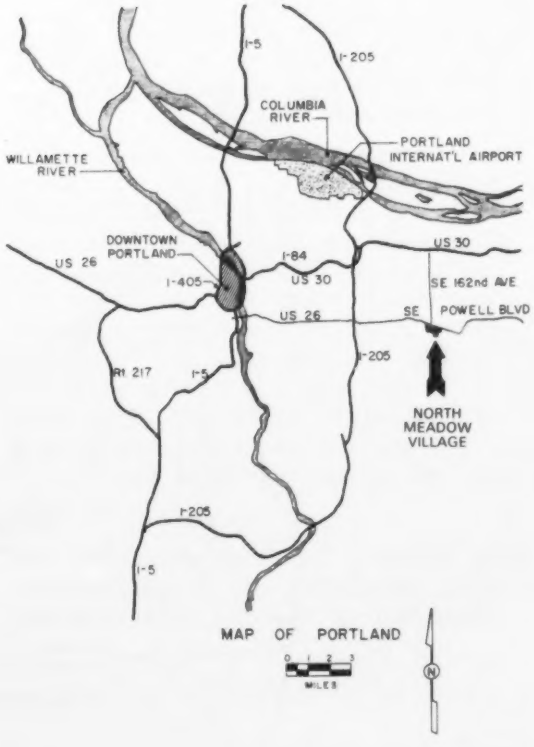


Mt. Hood

temperature drops below 32°F 44 days each year. The average July temperature is 69°F with average highs of 79°F. Precipitation occurs two days out of five during the year but only one day out of five from June through September. Total annual precipitation ranges between 40 and 50 inches, and average humidity is 72 percent.

In 1983, the average home price in Multnomah County was $70,607; new homes generally ranged from $69,000 to $81,500. Due to a depressed market, permits were issued for only 412 housing units. The rental vacancy is 10 percent, and 53.3 percent of all households own their homes.

The city of Portland has a commission form of government in which the mayor and four commissioners comprise the



Portland skyline with Mt. Hood in background

City Council. Each council member serves a four-year, full-time term and heads a department to which bureau heads report.

The Planning Bureau reviews all land use requests and recommends appropriate action to the City Council, which makes final decisions.

The Builder - Black Bull Enterprises

West Coast football fans remember Mike Robinson as a star linebacker for the San Diego Chargers from 1967 to 1969 and, prior to that, for Oregon State, where he studied structural engineering. Robinson founded Black Bull Enterprises, a development company, in 1975. Since then he has developed a 33-unit single-family subdivision, a 44-unit condominium, a 30,000-square-foot retail store complex, and more than 50 custom homes. Adjacent to the demonstration site, North Meadow Village, he has begun a 700-lot, low-density, single-family detached housing tract, selling developed sites to builders. Most of Robinson's projects are designed by his brother, architect Jerry C. Robinson.

Mike Robinson

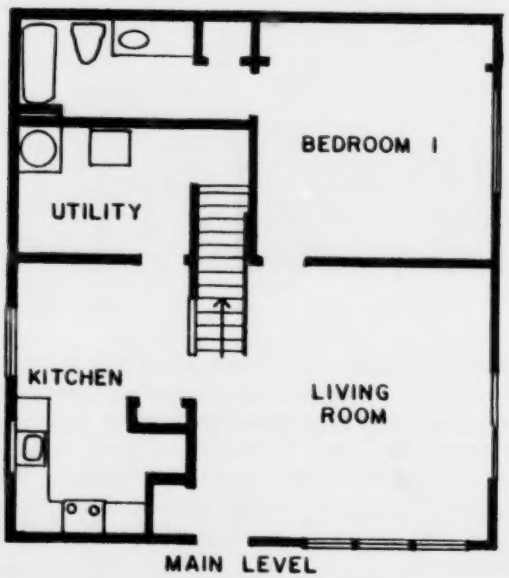
Black Bull Enterprises also consults for other developers on development design, zoning, governmental processing, and finance. Black Bull's consulting services have helped assemble a 200-acre industrial park and several condominium projects.

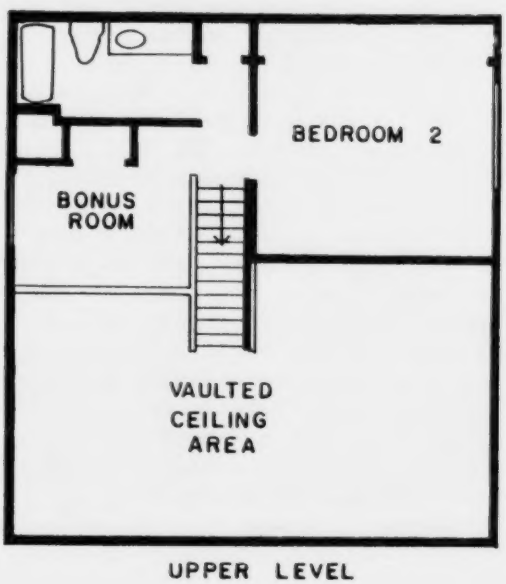
Besides Mike Robinson, Black Bull's staff includes a secretary and construction site supervisor. Black Bull subcontracts all architectural design, engineering, infrastructure development, and building construction. Limited partnerships are assembled to finance each project.

The Project - North Meadow Village

Easily accessible to downtown Portland, North Meadow Village is a

STANDARD FLOORPLAN





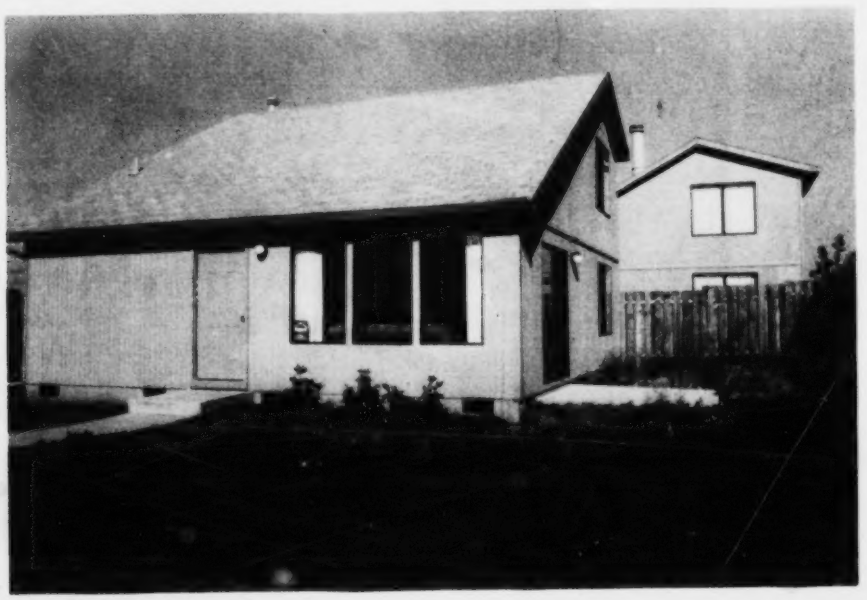
six-acre, single-family detached housing development on a gently sloping, grassy hilltop. It offers a view of snow-capped Mt. Hood to the west. Less than a mile to the south lies Powell Butte, a volcanic cinder cone that Portland is developing into a city park. The site is bordered by a two-lane state highway on the north and Anderegg Meadows, the Black Bull low-density, single-family detached housing development, on the south and west. A retail shopping plaza, also developed by Black Bull, lies to the east.

Robinson plans a total of 58 units in North Meadow Village with a density of 9.7 units per acre. In Phase I, begun in March 1984, 21 units were built. Construction of the 37 additional houses in Phase II will begin in 1986. The prices of the homes range from $50,000 to $55,000.

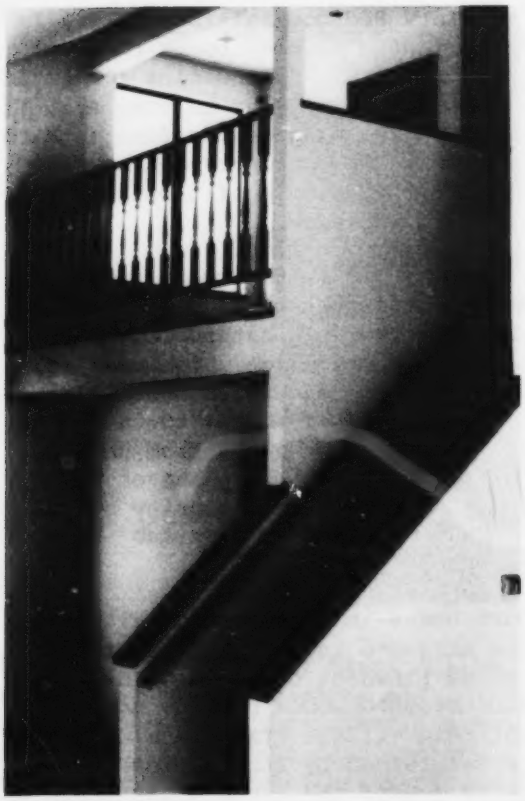
All housing units are basically identical and of a contemporary saltbox style. Vaulted ceilings over the living room, kitchen, and dining room slope upward toward a two-story bedroom/bathroom area. In most plans a balcony bonus room and railing overlook the dining room. In an optional plan, the balcony area is enclosed and expanded to form a third bedroom. The enclosure can be made as a full wall or a half wall with louvered screen.

Each home has 1,269 square feet of living space that includes a utility room and two full bathrooms. The open interior design, high ceiling, large windows and patio doors give a feeling of spaciousness to the homes. Home buyers can select from numerous options, such as fireplace or wood-burning stove, security system, drapes, and sliding-door tub enclosure.

Most homes in North Meadow Village are arranged in groupings of four called pinwheel clusters. These mini-neighborhoods provide an intimate village atmosphere. Privacy is maintained by facing windowless walls toward the large glass areas of adjacent homes and by placing fences between units.



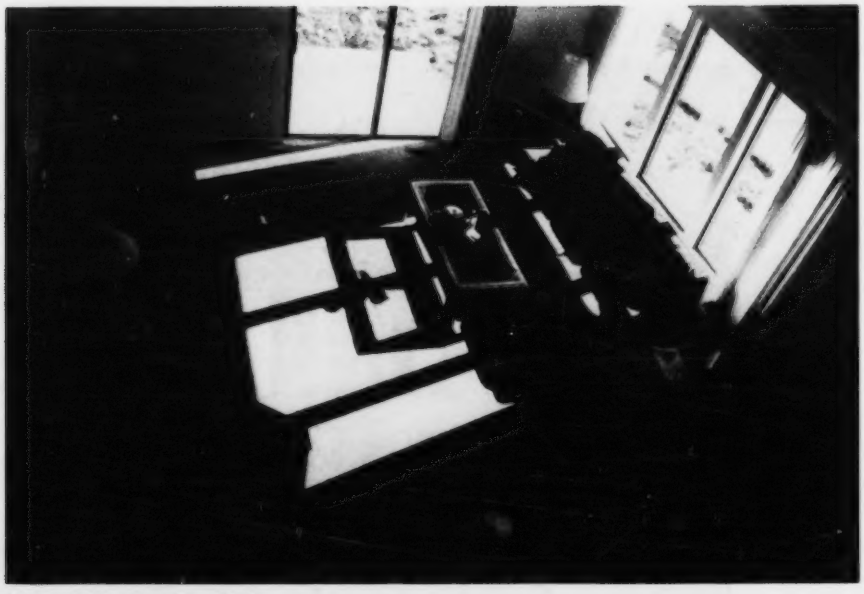
North Meadow Village unit



Living room

About a third of the units do not front directly on streets and are accessible by pedestrian walkways surrounding the clusters. Parking bays scattered along the curving streets throughout the development provide more than one-and-a-half spaces per unit, one per unit of which is covered with a corrugated metal roof supported by posts and beams. Two basketball and tennis courts are provided in the development.

Home buyers own the area only to the exterior walls of their homes. All exterior space, including streets and landscaped areas, is owned and maintained by the Homeowners Association to which each homeowner pays $25 per month. Each owner has exclusive use of a small side yard and patio.



Living room view from balcony

Street scene

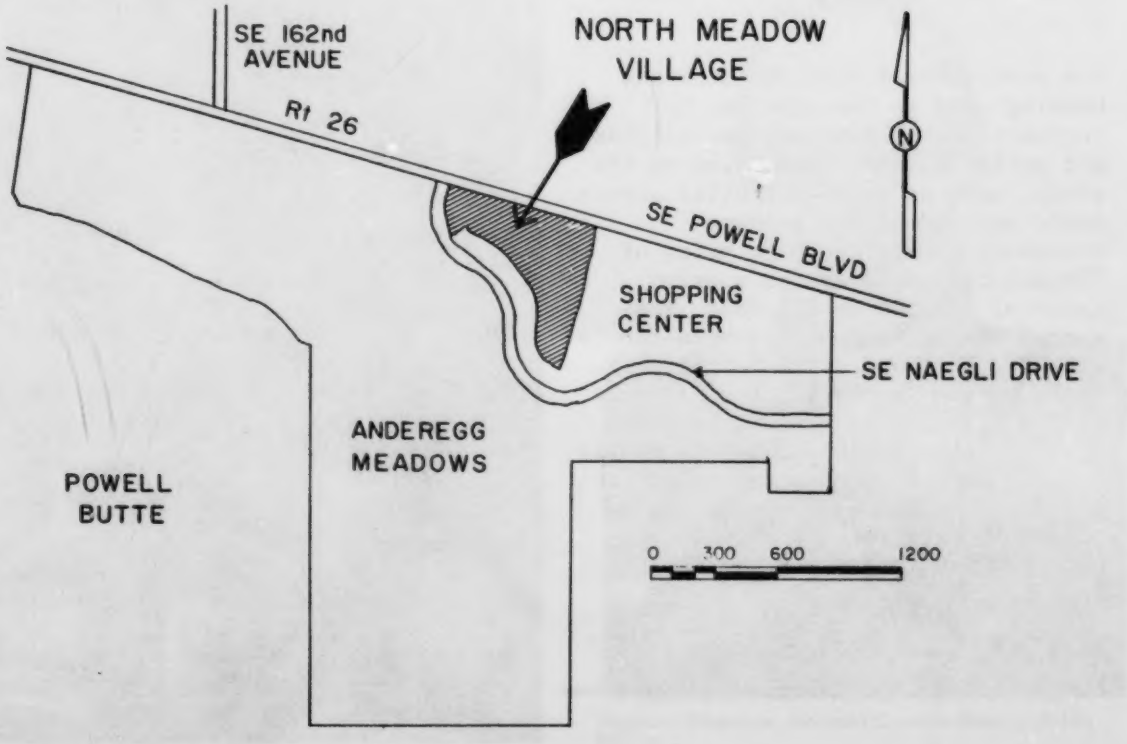
Chapter 2

Project History

Builder Planning and Rezoning

In 1979 Black Bull Enterprises, Inc., bought a 150-acre tract on a two-lane state highway in southeast Portland, next to Powell Butte, site of a planned park. Based on a market analysis of the area, Mike Robinson determined that a shopping center located on the highway in the northeast corner of the tract would be successful. In addition, he felt that a low-density, single-family detached subdivision would be successful on land adjacent to the future park, if most of it was insulated from the highway and shopping center by higher-density development.

All the residential land was initially zoned low-density, single-family, 4 units per acre. To get approval for the higher-density development, Robinson approached the city Planning Bureau with a rezoning plan. This plan requested establishment of a multifamily zone (22 units per acre) around the shopping center, bordering much of the highway, and a medium-density, single-family strip (6.28 units per acre) separating the low-density, single-family zone (4 units per acre) from the multifamily zone. Robinson in effect asked the Planning Bureau to trade higher densities in one portion of the tract for lower water and sewer system demand in the commercial and retail-commercial area, resulting in no change in the average or total water and sewer system demand. The Planning Bureau recommended the change to City Council, which approved it at a public meeting.



Portland regulations provide for neighborhood groups to appeal plans felt inappropriate to their area at City Council meetings, but no neighborhood opposition to the density change was encountered.

The low-density, single-family zone was developed first. Robinson subdivided the area into single-family lots, named it Anderegg Meadows, installed the streets and utilities, and began selling lots to individuals and builders.

In 1981 Robinson began planning development of a 6-acre portion of the tract zoned for multifamily housing (22 units per acre). Although this allowed duplexes, rowhouses, and garden apartments, a market research study done for Robinson concluded that high-density, single-family detached housing would better suit his market. Because of the study, Robinson discarded the idea of multifamily development in favor of high-density single-family detached.

The study showed that the greatest housing need in the area was by retirees, first-time buyers, singles, and professionals. According to the study, most of these potential buyers could not afford the average Multnomah County new home price of $70,607 but could afford a price range of $50,000 to $55,000. They wanted the privacy of a single-family dwelling but were willing to buy a small home on a small lot as long as the home was of high quality. The research also showed that many people in this target group actually prefer smaller houses, because they are easier to care for and have lower mortgage payments.

Robinson also determined that very substantial reductions in home costs could be achieved, without affecting housing quality, by rethinking and modifying development standards and increasing density in an aesthetically pleasing way. Reductions in lot sizes, street widths, unit setbacks from the street, street rights-of-way, parking requirements, and the like, could once again make single-family homes affordable to Robinson's market of empty-nesters, first-time buyers, and singles.

Robinson and his brother worked to design a subdivision acceptable to the city and the neighborhood that would still meet the market needs. The resultant design involves pinwheel clusters of four units with

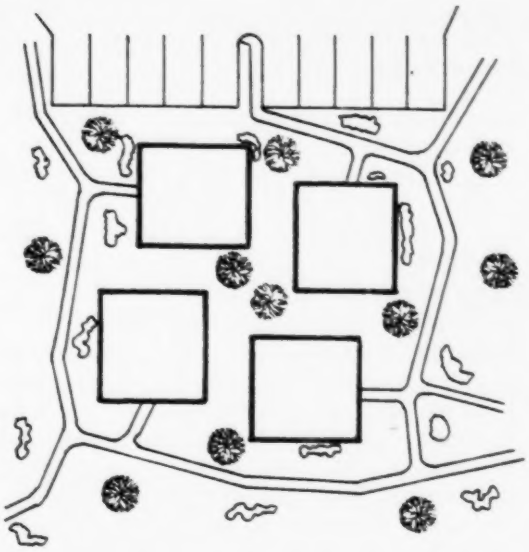
Kitchen and dining room

entrances facing different directions, a design the Robinsons had observed in Denver, used by developer Dave Klinger.

Mike Robinson first learned of the Affordable Housing Demonstration in 1982, when he was president of the Portland Home Builders Association (HBA). NAHB/RF contacted the HBA to find a builder to participate in the demonstration, and Robinson was encouraged to participate by Mike Brough, head of the Portland HBA Land Development Committee.

City Support

Mayor Frank Ivancie agreed to work with the Department of Housing and Urban Development (HUD), the NAHB Research Foundation (NAHB/RF), and Black Bull Enterprises to produce an affordable housing development



PINWHEEL CLUSTER

Mayor Frank Ivancie

Margaret Strachan - Portland Commissioner of Public Utilities

through more effective and efficient site development and building procedures.

The Portland City Council, including Mayor Ivancie, adopted a resolution supporting the demonstration project on April 13, 1983. (See Appendix I for a copy of the resolution.) HUD designated the project an official demonstration and announced Black Bull Enterprises' participation on June 23, 1983.

Participation in the Affordable Housing Demonstration and support by the mayor and City Council enabled Black Bull Enterprises to negotiate with the city to change some restrictive regulations. Mike Robinson worked closely with city staff to obtain changes in standards and regulations to reduce costs; the city officials included Mayor Frank Ivancie, in his role as member of the City Council overseeing the Planning Bureau, Terry Sandblast, Director of the Planning Bureau; Margaret Strachan, City Commissioner overseeing the Building Bureau; and Steve Gerber, City Code Administrator.

The city officials expedited the regular administrative reviews for North Meadow Village, with Gerber steering the application through the Public Works Department, Water Bureau, and Fire Department. HUD, NAHB, and NAHB Research Foundation provided technical assistance.

Although Portland has had a Planned Unit Development (PUD) ordinance since 1981 allowing some deviation from standard regulations, Robinson used the normal subdivision approval procedure. The normal procedure, as expedited by city staff, was faster than the PUD procedure and saved Robinson time. This normal procedure requires that the development and construction practices be approved by each city bureau: Public Works, Water, Police and Fire, Parks and Recreation, Building, and Planning. When all approvals were received, the Planning Bureau recommended that City Council approve the project at its monthly public meeting.

Cluster design showing group of three

Robinson began working with bureau engineers during the summer of 1983. With City Codes Administrator Steve Gerber expediting the approval process, City Council approved the preliminary plat in February 1984.

Robinson immediately began site preparation. Building permits for the six units in Phase I Stage I were issued in March 1984 and for the fifteen units in Stage II, in October 1984. The first units went on sale in September 1984. (For a concise chronology of the project, see Appendix II.)

Marketing

Black Bull Enterprises marketed North Meadow Village to its original target group of first-time home buyers, singles, and professionals in the 25 to 35-year-old age bracket and empty-nesters by advertising in newspapers, showing prospects a finished model, and distributing brochures at the model. A grand opening, held on September 5, 1984, was announced in a press release circulated by HUD and attended by HUD Secretary Samuel R. Pierce, Jr., and members of the city of Portland staff.

The traffic of interested people was heavy for the first few weeks, but 13 percent interest rates slowed sales. In late 1984, when interest rates dropped to 12 percent, Robinson decided to rekindle prospective buyer interest by proceeding with installation of the 15 units planned for Phase I Stage II and completing the streets. This stage was planned

North
Meadow
Village
STARTING AT
$49,950
An affordable cluster-home subdivision
• single-family, detached homes
• 2 bedroom with 3rd bedroom optional
• 1264 sq. ft.
Located at 166th and Powell Blvd.
For more information call 20/20 Properties 760-2020
And see us in the Home Builders Association's "Grand Tour of Homes"

Example of ad

for completion during the seasonal buying surge in the spring and summer of 1985.

Robinson increased newspaper advertising and used model homes, signs, real estate salespersons, and sales brochures on site to market the homes. Buyers were offered conventional bank financing as well as state GI, federal VA and FHA.

During the summer of 1985, with 21 units completed, a temporary market glut continued to hurt sales at the development. The addition of homes foreclosed and marketed by financial institutions, a lingering effect of high unemployment generated by the economic recession of the early 1980's, contributed to the oversupply and price deflation. In addition, falling interest rates failed to stimulate strong sales because some people waited for rates to drop further.

In spite of the weak market, by fall 1985, Robinson succeeded in establishing marketing momentum by selling seven units. Traffic increased and potential buyer interest continued to strengthen.

SITE PLAN

Chapter 3

Changes and Their Impact on Costs

One purpose of the Affordable Housing Demonstration is to collect and evaluate sound cost data on residential development practices and construction techniques. The following discussion describes the approval processes required for North Meadow Village in the city of Portland, changes in the processes and in regulations requested by Black Bull Enterprises, specific variances from usual administration and processing, changes in site planning and development, and changes in building design and construction.

Administrative and Processing Changes

The city staff's positive attitude and extra effort shortened the time required for reviewing construction variance requests and granting or rejecting changes. Fast tracking reduced the construction variance process from a normal six months to three months.

Expediting the process also saved the city many hours of meetings.

The city had previously granted North Meadow Village higher-than-normal density in return for commercial and retail zones that Robinson created on another portion of the parcel. The city approved this trade-off because commercial and retail development require far less water and sewer capacity than does residential development. Robinson's careful long-range planning thus enabled him to achieve higher-than-normal density and minimize his zoning approval time. Because of the prior agreement, discussions with neighborhood groups were unnecessary, zoning approval was routine, and the city granted concurrent preliminary and final plat approvals. The zoning process required only six months instead of the usual twelve, saving Robinson six more months.

A total of nine months' time was saved on administrative and

processing changes--three months on construction variance review plus six months on zoning approval. Saving this time reduced the indirect expenses and carrying charges that Robinson would have had without the benefit of accelerated administrative processing. In addition, Robinson saved labor and material cost increases due to inflation occurring during the nine months, which he would have had to pass on to his customers in the form of higher prices.

A total of $2,047 per unit was saved on the North Meadow Village project through administrative and processing changes.

Site Planning and Development Changes

Because Portland allowed numerous changes to the city's normal site planning and development requirements, costs of developing land in North Meadow Village were lower than normal.

North Meadow Village was initially zoned low-density single-family with 4 units per acre and 24 units for the 6-acre subdivision. By trading commercial land with low water and sewer demand for higher-density residential zoning, Robinson was able to increase the density to 9.7 units per acre and 58 units for the subdivision.

In the summaries that follow, costs for the demonstration are for a subdivision of 58 units while comparison costs are for a typical 24-unit subdivision. In some cases the demonstration costs are higher than those of the comparison because there are more homes in the demonstration. In these cases, however, costs per unit are usually lower in the higher-density demonstration.

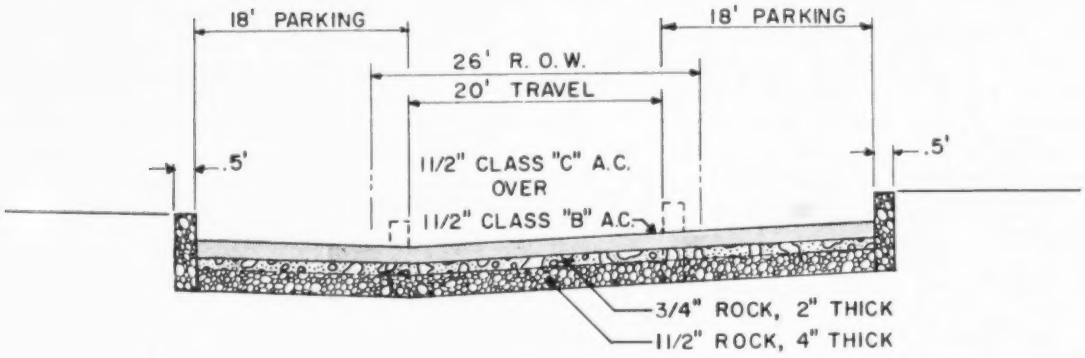
The total cost of raw land was $290,000. If Robinson had built a low-density single-family subdivision of 24 units on the parcel, the land cost per unit would have been $12,083 ($290,000/24). Instead, North Meadow Village has 58 homes, so the land cost per unit was $5,000 ($290,000/58), a savings of $7,083 per unit.

Portland allowed reductions in street pavement width from 28 to 20 feet, substantially reducing paving costs. Since the city did not accept title to the streets, however, the North Meadow Village Homeowners Association must bear the cost of street maintenance. Robinson's addition of parking bays along the streets more than offset the savings in paving costs due to narrower streets but added to the savings in house construction by eliminating driveways. In North Meadow Village, street construction cost $14,746 more than in the comparison subdivision. Paving cost per unit, however, declined by $1,321 due to the greater number of units in the demonstration.

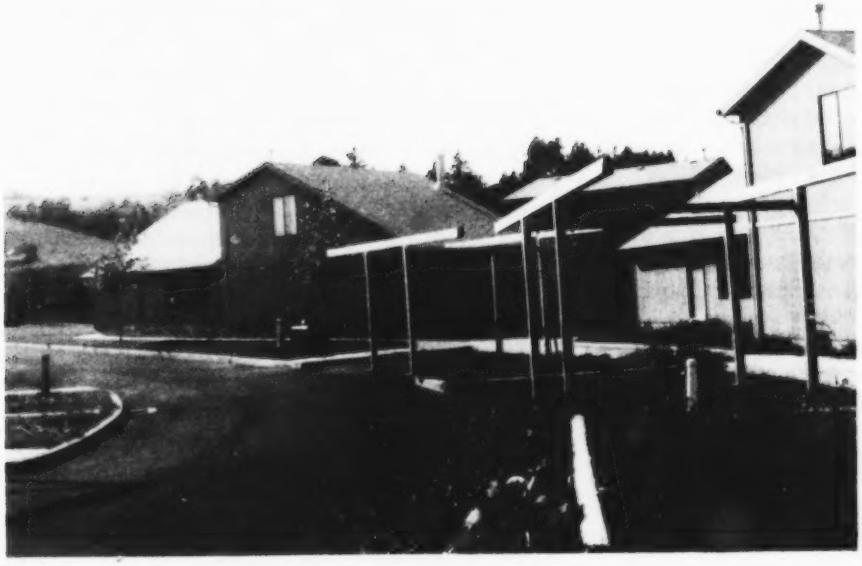
The city accepted a straight curb without gutters for the demonstration in place of the normal curb and gutter. Additional curbing installed on the sides of parking bays in Robinson's development plan resulted in a total cost $1,013 more than the comparison but a unit cost savings of $246.

In normal Portland subdivisions, regulations require 5-foot sidewalks on one side of the street. The North Meadow Village site plan called for 4-foot sidewalks on both sides of the street plus additional sidewalks in common areas to connect off-street pinwheel cluster houses with the street and parking bays. Total additional cost was $29,904.

Builders in Portland frequently install gas, electric, telephone, and



TYPICAL STREET/PARKING SECTION



Covered parking bays under construction

TV lines in a common trench. In addition to allowing this practice, the city of Portland permitted Robinson to install his common trench and water line trench outside the right-of-way. This shortened the trenches and allowed the use of less expensive native backfill instead of off-site granular backfill. The city would not waive their normal requirement that sanitary sewers be placed in a separate trench with the mains in the right-of-way. Robinson saved $5,040 by installing his common trench and water line trench outside the right-of-way and using backfill from the site.

Portland allowed Robinson to install a private water system with a 6-inch polyvinylchloride (PVC) fire hydrant line plus a 4-inch PVC domestic water

line instead of the normal 8-inch ductile iron pipe. It also permitted installation of only two meters on the entire system, one on the domestic line and one for sensing leaks on the fire hydrant line, instead of one for each house. Robinson's saving on meters and tap fees alone was $192 per house. He gained additional savings on trenching, piping, and fittings.

The Homeowners Association will add an estimate of water usage per unit to the monthly owners' fee. This fee also covers sewage, garbage pickup, and landscape maintenance.

Marketing a private water system with equal monthly fees for all residents is successful only where water usage is nearly the same. Otherwise, the billing system is unfair.

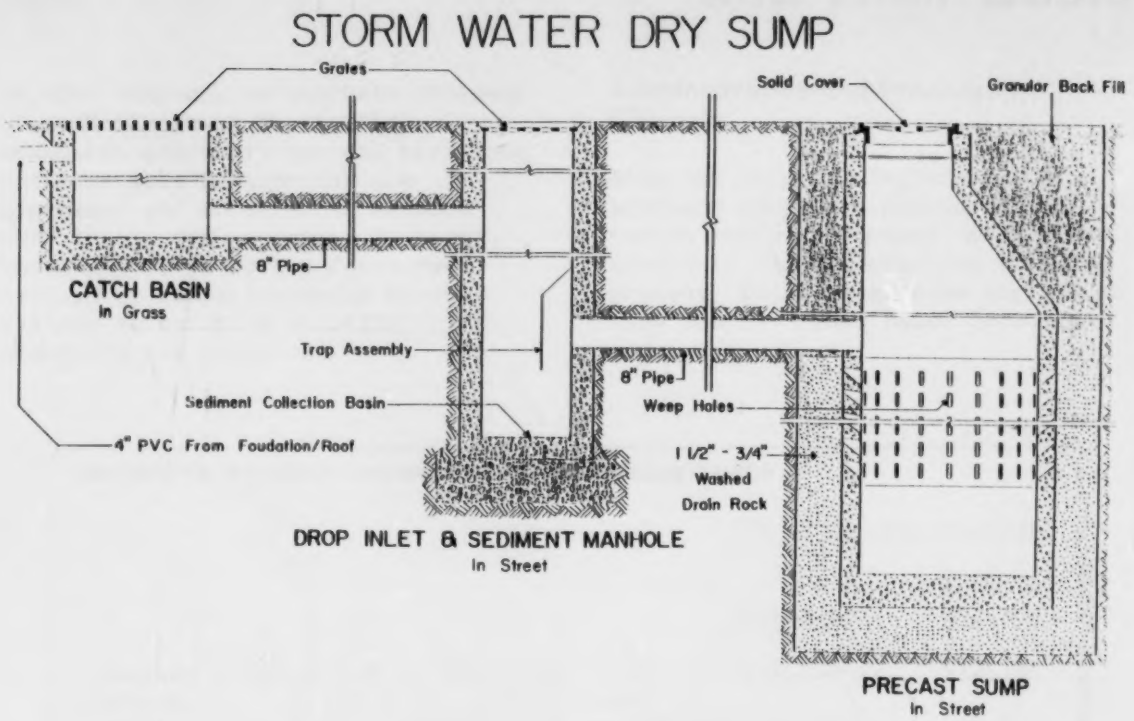
In North Meadow Village, water usage varies little from house to house, since all houses are identical in size and number of bathrooms. In addition, Robinson installed an automatic lawn sprinkling system to irrigate the lawns and common areas owned by the Homeowners Association. Without automatic lawn sprinkling, water usage would vary widely, billing would be inequitable and marketing the homes would be more difficult.

Robinson spent a total of $52,294 extra on his water service but provided the homeowners with free built-in lawn irrigation and, because of higher density, saved $1,283 per unit over conventional systems with a single, larger, ductile iron main, individual house meters, and no lawn irrigation.

In the sanitary sewer system, Robinson gained substantial savings by placing some mains outside the street right-of-way and using less expensive native backfill, 6-inch concrete sanitary sewer mains instead of 8-inch for each group of four units, and using cleanouts instead of some manholes. The city also allowed use of 6-inch concrete sanitary sewer collector lines in place of some of the normal 8-inch concrete mains. Total sanitary sewer system cost was higher for the demonstration than the normal subdivision because more houses were served, but per unit cost was lower. Overall savings on the sanitary sewer system were $1,251 per unit.

Robinson lowered his development costs by draining storm water into three on-site dry sumps that recharge the local water table. Storm water is carried by the streets and swales to area drains from which it is piped to dry sumps beneath the street, offering easy access for maintenance and cleaning. Robinson saved 630 feet of storm sewer pipe. This system also costs less than the grassy swale/detention pond system since it requires no land. Its use, however, requires a sufficiently high soil percolation rate; the earth must be capable of rapid, sustained absorption of water. Robinson's storm sewer installation saved him $6,350.

Because the city designated the streets private, Robinson had to have the power company install his streetlights. The power company streetlight equipment specifications differed from those of the city, and the cost was less than the city would have charged. In addition, the power company waived the normal $10,000 line extension charge; Robinson demonstrated that they would begin to recoup their line investment within one year because he would build all houses in the subdivision on speculation instead of constructing units over an indefinite period as he presold them. The city would have charged the line extension fee under any circumstances, had it built Robinson's street. Because the North



Meadow Village street was designated private, Robinson saved $13,800 on his electrical service and streetlight installation.

Building Design and Construction

Robinson used several building design and construction techniques to reduce the cost of his homes. Portland allowed him to run 1-1/2-inch PVC water lines from the street to each 4-unit cluster and 3/4-inch PVC from there to each house, instead of running 1-inch copper lines from the street to each unit.

Because of natural convection in the cathedral ceiling unit design, Robinson was able to eliminate 24 feet of heat ducts running to the second floor of each unit. Robinson also saved on house construction costs by eliminating private driveways and sidewalks; he installed covered parking bays in common areas along the the street instead of driveways and carports.

Because all the houses were nearly identical, Robinson's subcontractors were able to provide him with reduced prices on labor. In addition, because each house required the same amount of lumber, Robinson was able to tightly control material usage; he provided only that amount of lumber required for each house; the subcontractors supplied any extra material. These savings are substantial but difficult to estimate.

Excluding savings in purchasing due to standardization, Robinson saved a total of $70,325 in building design and construction.

Chapter 4

Details of Changes and Their Costs

In this chapter, an analysis of costs of each change in Portland's standards and/or in typical practices of Black Bull Enterprises are discussed and compared to methods used in the demonstration project. The analysis shows how costs were reduced by comparing North Meadow Village as built to existing standards and practices.

Administrative and Processing Changes

With the help of city officials, Robinson saved six months in the zoning approval process, plus three months in the construction variance process, for a total time savings of nine months. This saved $2,047 per unit.

Reduction in Administrative and Processing Costs

	Carrying Cost Savings	
	Annual Cost	9-Month Savings
Interest on land (13% of $290,000)	$16,250	$12,188
Interest on land planning, architectural & engineering costs & permits (13% of $56,000)	7,280	5,460
Indirect salaries, office overhead & expenses	54,000	40,500
Legal and accounting	5,000	3,750
Liability insurance on land	600	450
Real estate taxes on land	7,000	5,250
Labor and material inflation (58 units X $23,500 X 5% inflation rate)	68,150	51,113
TOTALS		$118,711
Cost Per Unit		$2,047*

*58 dwelling units

Site Planning and Development Changes

Initially, North Meadow Village was zoned low-density single-family with 4 units allowed per acre. Since the tract included 6 acres, a total of 24 units was permitted. Robinson succeeded in getting the land rezoned to low-density multifamily and his demonstration subdivision included 58 housing units, 9.7 units per acre.

Throughout Chapter 4, the comparison subdivision includes 24 units, and the demonstration, 58. If a cost component is the same for both the demonstration and the comparison, the cost per housing unit will be much lower for the demonstration because of the greater number of units. It is common for the demonstration to have a higher cost component than the comparison but still have a lower per unit cost due to a greater number of units in the demonstration. Savings per unit reflect both the difference in the infrastructure changes and the increase in number of units.

Following is a summary of land development cost savings. Detailed analyses of each development phase follow.

Land Development Cost Summary

	Demonstration	Comparison	Total Savings	Savings Per Unit***
Raw land	$290,000	$290,000	$ -	$7,083
Streets & parking bays	79,258	64,512	(14,746)	1,321
Vertical curbs	11,813	10,800	(1,013)	246
Sidewalks	37,104	7,200	(29,904)	(340)
Trenching	2,280	4,800	2,520	161
Water service	141,740	89,446	(52,294)	1,283
Sanitary sewer	67,996	58,160	(9,836)	1,251
Storm water drainage	19,580	25,930	6,350	743
Electrical service/ streetlights	2,600	16,400	13,800	639
TOTALS	$652,371	$567,248	$(85,123)	
Cost Per Unit	$ 11,248*	$ 23,635**		$ 12,387

*58 Units as built
**24 Units if built to existing standards
***Reflects both infrastructure changes and unit increase

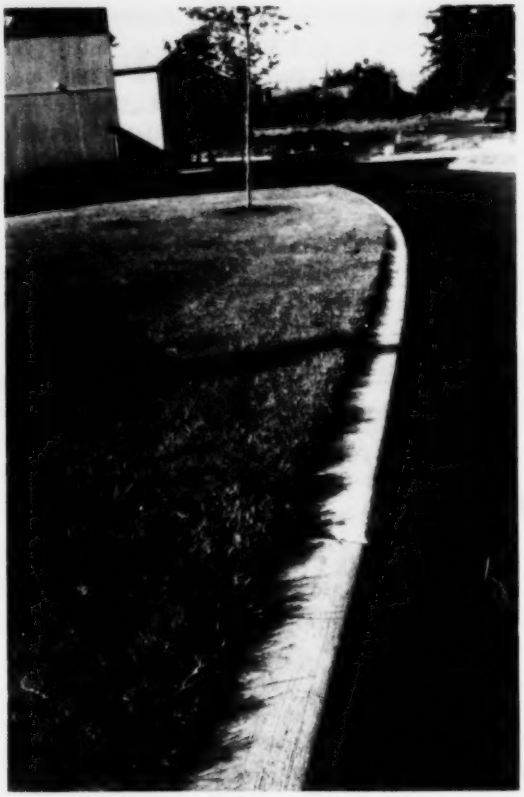
Streets

The normal residential subdivision street width requirement in Portland is 28 feet. For the demonstration, Portland allowed street width reductions to 20 feet. Robinson installed 24,000 square feet of street (20'x 1,200' long) plus 17,280 square feet of parking bays (96 spaces 10'x 18') for a total of 41,280 square feet in lieu of 33,600 square feet at the 28-foot width.

Street Cost Summary

	Demonstration	Comparison	Savings
Reduce widths from 28' to 20'	$ 46,080	$ 64,512	$18,432
Additionl paving of parking bays	33,178	-	(33,178)
TOTALS	$ 79,258	$ 64,512	$(14,746)
Cost Per Unit	$ 1,367*	$ 2,688**	$ 1,321***

*58 Units
**24 Units
***Reflects both infrastructure changes and unit increases



Vertical curb without gutter

Curbing

The builder installed 3,150 feet (2,400 feet plus 750 feet of parking bay sides) of vertical curbing without gutter instead of the 1,920 feet (2,400 feet minus 24 20-foot-wide driveways) that the standard required.

Curbing Cost Summary

	Demonstration	Comparison	Savings
TOTALS	$11,813	$10,800	$(1,013)
Cost Per Unit	$ 204*	$ 450**	$ 246

*58 Units
**24 Units

Sidewalks

Public sidewalks in North Meadow Village cost more than in a standard subdivision because they accessed off-street homes; 24,736 square feet (6,184 feet, 4-foot wide) were installed in lieu of 6,000 square feet in a standard subdivision (1,200 feet, 5-feet wide on one side of the street) minus 1,200 square feet (12 sections of driveway 5'x20' on that side of the street).

Sidewalk Cost Summary

	Demonstration	Comparison	Savings
Public sidewalks	$37,104	$ 9,000	$(28,104)
Less driveway sections	_	(1,800)	(1,800)
Totals	$37,104	$ 7,200	$(29,904)
Cost Per Unit	$ 640*	$ 300**	$(340)

*58 Units
**24 Units

Trenching Out of the Right-of-Way

The Portland Public Works Department permitted Robinson to install trenches for the water line and the gas, electric, telephone, and cable TV out of the street right-of-way. This shortened utility lines and allowed use of less expensive native backfill material instead of off-site granular backfill. Cost savings on the water line trench are calculated in the water service pipe costs and included in water service savings.

Trenching out of the Right-of-way

	Demonstration	Comparison	Savings
Gas, electric, phone, TV	2,280	4,800	2,520***
Cost Per Unit	$ 39*	$ 200**	$ 161

*58 Units
**24 Units
***An equal savings is included under pipe savings in the water service section below, for a total trenching savings of $5,040.

Water Service

One 4-inch polyvinylchloride (PVC) domestic water line and one 6-inch PVC fire hydrant line with one water meter each for the entire development were installed instead of one 8-inch ductile iron line with individual house meters. The city allowed trenching outside the street right-of-way which shortened line lengths and allowed use of less expensive native backfill. Because the system was private, elimination of individual meters was permitted with the property owners association billing the members. This was possible only because the houses in the development were identical and had the same number of plumbing fixtures and because an automatic sprinkling system irrigates common areas (all land outside the houses). Without the lawn sprinkling system, equal allocation of the total water bill among all owners would be inequitable; people who used less water on their lawns would be charged unfairly. Buyer perception of this inequity could hurt sales. Therefore, because the irrigation system was required for buyer acceptance of the water bill allocation system, its cost is included in the demonstration water service cost. The number of tie-ins and meters were reduced from 24 to 2, decreasing total costs, and costs per unit were reduced by $1,283.

Water Service Cost Comparison

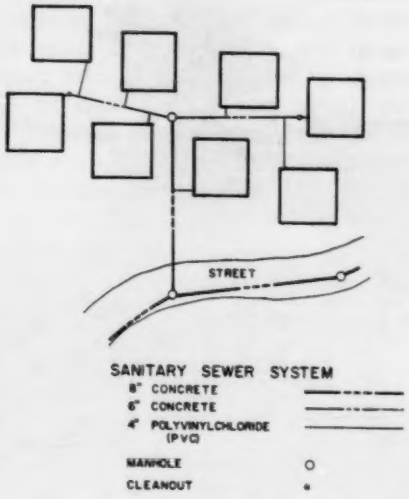
	Demonstration	Comparison	Savings
Completion bond	$ -	$ 500	$ 500
Hydrants & blow-off valves	6,000	6,000	-
Gate valves	2,400	4,800	2,400
Taps, valves, pressure-reducers, meters & vault	32,341	18,000	(14,341)
Check valves	7,200	-	(7,200)
8" ductile iron pipe (labor, material & trenching)	-	60,146	60,146
6" PVC pipe (lab/mat/trench)	6,840	-	(6,840)
4" PVC pipe "	5,328	-	(5,328)
4" meter, vault, service tap	4,631	-	(4,631)
Devt. charges on meters	4,500	-	(4,500)
Lawn sprinkling system	72,500	-	(72,500)
Totals	$141,740	$89,446	($52,294)
Cost Per Unit	$ 2,444*	$ 3,727**	$ 1,283

*58 Units
**24 Units

Lawn irrigation

Sanitary Sewer

The builder installed 1,644 feet of 8-inch concrete sanitary sewer mains; 969 feet of 6-inch collector sewer; 570 feet of 4-inch lateral piping; 18 manholes; and 14 cleanouts instead of the standard system requiring 1,588 feet of 8-inch concrete mains, 1,032 feet of 4-inch house laterals, and 17 manholes. The number of tap-ins were increased from 24 to 58. The use of less expensive native backfill in off-street trenches and shorter street mains and laterals and fewer manholes than normal in a subdivision of 58 units decreased per unit cost by $1,251.



Sanitary Sewer Cost Comparison

	Demonstration	Comparison	Savings
8" Conc. mains - in street (granular backfill)	$18,500	$31,760	$13,260
8" Conc. mains - off-street (native backfill)	10,785	-	(10,785)
6" Concrete collectors	14,535	-	(14,535)
4" PVC house laterals	2,436	6,000	3,564
Manholes	21,600	20,400	(1,200)
Cleanouts	140	-	(140)
Total	$67,996	$58,160	($9,836)
Cost Per Unit	$ 1,172*	$ 2,423**	$ 1,251

*58 Units
**24 Units

Storm Water Drainage

Robinson installed five area drains, five inlets, three sediment manholes, three sumps, 570 feet of 8-inch PVC pipe instead of standard 8-inch and 10-inch concrete storm sewer and five manhole/inlets. Draining water into sumps is much less expensive than the standard system and also costs less than grassy swales which carry water into storm water detention ponds, because no land is required. Sumps, like ponds and swales, offer the environmental advantage of holding surface water until it is absorbed, thereby increasing the local ground water supply. The sump system, however, is possible only where soil is porous.

Storm Water Drainage Cost Summary

	Demonstration	Comparison	Savings
8" concrete pipe	$ -	$ 1,250	$ 1,250
8" PVC pipe	2,400	-	(2,400)
10" concrete pipe	-	8,500	8,500
Manhole/inlets		10,500	10,500
Sediment manholes	4,500		(4,500)
Inlets	2,000	2,000	-
Area drains	3,180	3,180	-
Sumps	7,500		(7,500)
Hook-up fee	-	500	500
TOTALS	$19,580	$25,930	$ 6,350
Cost Per Unit	$ 338*	$ 1,080**	$ 742

*58 Units
**24 Units

Electrical Service/Streetlights

Because the North Meadow Village street was not built by the city, Portland General Electric, the local power utility, had to install the streetlights. The fee for streetlight installation was less than that of the city because their specifications differed from the city's. This resulted in substantial savings for Robinson. In addition, Robinson was spared a $10,000 line extension charge that the city would have charged because he demonstrated to the power company that they would be able to recoup their line investment quickly.

Electrical Service/Streetlight Cost Comparison

	Demonstration	Comparison	Savings
Streetlights	$ 2,600	$ 6,400	$ 3,800
Line extension charge	-	10,000	10,000
Total	$ 2,600	16,400	13,800
Cost Per Unit	$ 45*	$ 683**	$ 638

*58 Units
**24 Units

Building Design and Construction Changes

The city allowed one 1-1/2-inch PVC water line to be run from the street to each 4-unit cluster and 3/4-inch PVC from there to each unit, instead of one 1-inch copper line from the street to each unit. Because of natural convection in his cathedral ceiling unit design, Robinson eliminated 24 feet of heat ducts running to the second floor of each unit. By installing parking bays along the street, Robinson eliminated off-street driveways, normally 16'x 20' in size. Robinson eliminated private sidewalks from the driveways to the entry doors (3'x 25') by making all land common space.

Construction Cost Savings

Demonstration	Comparison	Cost Savings Total*	Per Unit
1-1/2" PVC to cluster, 3/4" PVC to unit	One 1" copper line from street to each unit	$ 1,856	32
No ductwork to 2d floor	Ductwork to 2d floor	5,974	103
No driveways	16'x 20' driveways to each unit	27,840	480
No driveway curb cuts, concrete aprons	Driveway curb cuts, concrete aprons	29,000	500
No sidewalks from driveways to entries	Sidewalks from driveways to entries - 3'x 25'	5,655	98
	TOTALS	$ 70,325	1,213

*58 units

Cost Savings Summary

Following is a summary of cost savings per unit in North Meadow Village due to relaxed governmental regulations and builder/developer variations to typical practice.

	Cost Savings Per Unit
Administrative and processing	$ 2,047
Land development	12,387
Direct construction	1,213
TOTAL	$15,647

Portland City Council Resolution Supporting Affordable Housing Demonstration

RESOLUTION NO. 33392

A Resolution authorizing City participation in the Affordable Housing project.

WHEREAS, it is in the City's interest to encourage low cost housing for its residents, and

WHEREAS, the Housing Policy of the City of Portland states that the City shall attempt:

a. To clarify, expedite and streamline, to the extent possible, land use regulations, including the elimination of unnecessary and costly local government regulations

b. To reduce administrative delays in consideration and review of housing projects

c. To eliminate any City regulations, standards, fees or other indirect costs which are not required to protect the public safety and welfare, and

WHEREAS, the Office of Housing Policy's Housing Cost Study has identified a number of cost saving procedural changes worthy of indepth consideration, and

WHEREAS, the U.S. Department of Housing and Urban Development has sponsored the Affordable Housing Project to seek ways to reduce costs, and

WHEREAS, a developer has expressed interest in participating in the program in Portland,

NOW, THEREFORE BE IT RESOLVED, THAT:

1. The City of Portland shall participate in the Affordable Housing project.

2. That the Bureau of Buildings, Bureau of Planning and other appropriate City agencies shall use this opportunity to experiment with their procedures and to evaluate the recommendations of the Housing Cost Study.

3. That the Office of Housing Policy shall facilitate and monitor the project and report to Council on its results in reducing housing costs.

Adopted by the Council APR 13 1983

JEWEL LANSING

Auditor of the City of Portland

Enid Lenza

Deputy

Mayor Francis J. Ivancie
Commissioner Margaret D. Strachan
Rick Michaelson:ts
April 8, 1983

Project Schedule

Relevant Dates in Project Development

1979 - Black Bull Enterprises purchased land.

1981 - Robinson began planning development of the 6-acre North Meadow Village tract.

September 1982 - Robinson, President of the Portland Home Builders Association, learned of the Affordable Housing Demonstration.

October 6, 1982 - Robinson sent a letter indicating interest to HUD.

February 9, 1983 - HUD selected Robinson for participation.

April 13, 1983 - Portland City Council passed a resolution of participation in the Affordable Housing Demonstration. (See Appendix I.)

June 15, 1983 - The Portland Affordable Housing Demonstration was announced in a press release.

June 23, 1983 - HUD officially designated North Meadow Village an Affordable Housing Demonstration.

August 1983 - Robinson sent his list of requested changes in requirements and practices to the Planning Bureau.

November 1983 - Portland Planning Bureau gave Robinson approvals on his list of requested changes in requirements and practices.

February 1984 - Portland Planning Bureau gave Robinson a preliminary approval on his plan and concept.

March 1984 - Permits issued for the first six units in Phase I Stage I. Robinson began construction.

April 1984 - Robinson requested formal approval of the subdivision from the Portland Planning Bureau.

June 1984 - Portland Planning Bureau formally approved subdivision.

September 5, 1984 - Robinson held grand opening, attended by HUD Secretary Samuel Pierce, HUD Division Director Joseph Sherman, Mayor Frank Ivancie, and local press. First six units went on sale.

October 1984 - Permits issued for the additional 15 units in Phase I Stage II. Robinson began construction.

*U.S. GOVERNMENT PRINTING OFFICE: 1986-620-562:40694

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